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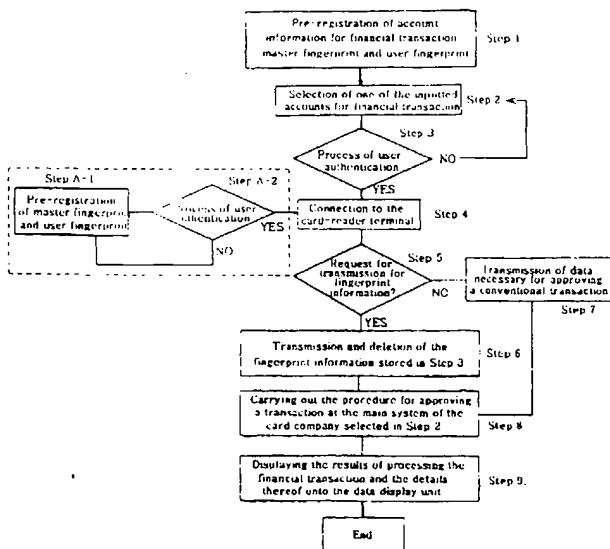
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(54) Title: A METHOD OF SETTLEMENT OF AN ELECTRONIC CARD ORGANIZER FOR FINANCIAL INFORMATION USING A FINGERPRINTER INFORMATION



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(57) Abstract: The present invention relates to a method of settlement for an electronic card organizer for financial information, which comprises storing fingerprint data of a user on an electronic card organizer for financial information; processing user authentication by reading the fingerprint information of the user at the time of each financial settlement; connecting to a card-reader terminal, and upon receiving a request for fingerprint information from the main system requesting an approval for transaction, once again processing user authentication by transmitting the fingerprint information stored on said electronic card organizer for financial information to said main system.

A METHOD OF SETTLEMENT OF AN ELECTRONIC CARD
ORGANIZER FOR FINANCIAL INFORMATION USING A
FINGERPRINTER INFORMATION

5 **Technical Field**

The present invention relates to a method of settlement for an electronic card organizer for financial information, or more particularly to a method of settlement for an electronic card 20 for financial information, using fingerprint data, for settlement by connecting to a terminal necessary for financial settlement and 10 electronic commerce by means of using an electronic card organizer 20 for financial information, capable of user authentication by using the fingerprint data.

Background Art

Generally, a fingerprint is one of the bodily characteristics of human. Since 15 everyone's is different from one another, along with its unique characteristic of not changing over one's lifetime, a fingerprint provides higher reliability and stability with respect to its ability for identification, as compared other means, e.g., a retina, iris, vein, and face recognition. As such, it is being used as an efficient means of individual authentication.

20 For commercial transactions by using fingerprints, people have used a card having an IC chip installed therein for storing fingerprints, which stores user fingerprint data, or a card printed with a fingerprint on the particular section thereof after taking a fingerprint from the user at the time of issuing a card. This has been used as a means of user authentication for settlement of money in commercial 25 transactions. Nevertheless, even if one has a card having an IC chip for storing fingerprints, which stores user fingerprint data, or a card printed with a fingerprint on the particular section thereof after taking a fingerprint from the user at the time of issuing a card for carrying out user authentication as above, there has to be a part for taking fingerprints and capability for fingerprint recognition on a wire/wireless 30 terminal device necessary for electronic commerce, or on a card-reader, such as an Easy-checker. Further, at the time of settlement, it is only possible by directly

putting a user's finger against the part for taking fingerprints on a corresponding device. For this reason, there is inconvenience in its actual use for user authentication. Further, there is a high likelihood of contamination on the part for taking fingerprints of the corresponding device. Moreover, due to the vast amount 5 of information for fingerprint data, there may be a process delay in the settlement system, or by exceeding process capacity at the time of a sudden jump of users, there may be a system failure.

DISCLOSURE OF THE INVENTION

10 In solving the problems of prior art as mentioned above, the present invention seeks to provide a method of settlement for an electronic organizer card organizer 20 for financial information, which comprises storing user fingerprint data on an electronic card organizer for financial information; processing user authentication by reading user fingerprint information at the time of each financial settlement; 15 connecting to a card-reader terminal; and upon receiving a request for fingerprint information from the main system requesting an approval for transaction; and once again processing user authentication by transmitting the fingerprint information stored on said electronic card organizer for financial information to said main system.

For achieving said objectives, the present invention comprises an electronic card 20 organizer having a data input unit 11, a fingerprint input unit 12, an IC chip (illustration omitted) storing user fingerprints or a data storage unit 15, a user authentication processing unit 16, a control unit 10, an input/out terminal 17, a RF communication unit 18, a magnetic data storage unit 19, wire/wireless linkers (23, 24), a data display unit 14, and a power unit 13; and a card-reader terminal having a 25 data storage unit, a data display unit, and a connection terminal which can be connected respectively to said electronic card organizer 20 for financial information, an input/output terminal 17, a RF communication unit 18, or wire/wireless linkers (23, 24).

In providing the method of settlement for an electronic card organizer for 30 financial information by using fingerprint information, the present invention comprises as follows: The fingerprint information is read, inputted from the

fingerprint input unit 12 of said electronic card organizer 20 for financial information. Then, while comparing it with the pre-stored fingerprint information for determining to grant user authentication, if they match, the fingerprint information is stored in compression for a certain period of time at the data storage 5 unit 15 by extracting the features of a fingerprint, followed by encoding. If they do not match, after undergoing the user authentication process, returning to the stand-by mode, a connection is made to said card-reader terminal 30. When the signal for requesting fingerprint information for user authentication is transmitted from the corresponding main system 40 requesting an approval for transaction, the fingerprint 10 information stored in compression at the data storage unit 15 of said electronic card organizer 20 for financial information is transmitted through said main system 40, followed by deletion thereafter. If the signal requesting fingerprint information for user authentication from said main system 40 is not transmitted, only the information necessary for an approval for transaction is transmitted to said main system 40 15 through said card-reader terminal 30. Then, if the fingerprint information is requested, the main system 40 carries out a comparison with the fingerprint information of the account requesting an approval for the corresponding transaction. If the fingerprint information is not requested, the conventional process of approving a transaction without the process of confirmation of fingerprint information is 20 carried out. When there is an approval for transaction, the transaction approval number and the transaction details are transmitted to said card-reader terminal 30. When there is a denial of an approval for transaction, the error message pertaining to the denial of an approval for transaction along with the error code is transmitted to said card-reader terminal 30.

25 Moreover, the card-reader terminal 30 equipped as such can carry out the same functions of the process of user authentication of said electronic card organizer 20 for financial information, prior to its connection to said electronic card organizer for financial information. In this case, when the resulting information for an approval for transaction is transmitted from the main system 40 to said card-reader terminal 30, the card-reader terminal 30 stores said resulting information for the approval of transaction at the data storage unit of said card-reader terminal 30 while

simultaneously displaying the same on the data displaying unit. There, the information of transaction details stored therein can be referenced and outputted through a printing device.

Moreover, the present invention provides a method of settlement for an electronic card organizer for financial information by using fingerprint information, which comprises as follows: After receiving authorization for an approval for transaction from said main system 40 requesting an approval for transaction, or the data according to the denial of an approval for transaction, the card-reader terminal 30 transmits the data to said electronic card organizer 20 for financial information for the purpose of allowing confirmation on the data displaying unit 14 of said electronic card organizer 20 for financial information.

Moreover, the present invention provides a method of settlement for an electronic card organizer for financial information by using fingerprint information, which comprises as follows: the connection between said electronic card organizer 20 for financial information and the card-reader terminal 30 can be achieved by one of the means of wire/wireless linkers (23, 24), an input/output terminal 17, or a RF communication unit 18. It is equipped with a magnetic data storage unit equivalent to the conventional magnetic data storage medium. Connecting to the conventional magnetic card-reader, the present invention allows settlement by means of the conventional method.

Moreover, the present invention provides a method of settlement for an electronic card organizer for financial information by using fingerprint information, which comprises as follows: the card-reader terminal 30 is a wire/wireless terminal, which needs a user authentication function, e.g., a desktop computer, a notebook computer, and a portable mobile telephone.

Moreover, the present invention provides a method of settlement for an electronic card organizer for financial information by using fingerprint information, which comprises as follows: After selecting a credit card for allowing settlement for a transportation card and undergoing user authentication at said user authentication processing unit 16, the electronic card organizer 20 for financial information allows settlement by way of connection to the transportation card

terminal.

Moreover, the present invention provides a method of settlement for an electronic card organizer for financial information by using fingerprint information, which comprises as follows: After selecting the bank account information and 5 undergoing user authentication at said user authentication processing unit 16, the electronic card organizer 20 for financial information allows settlement by way of connection to the ATM terminal on bank network.

Moreover, the present invention provides a method of settlement for an electronic card organizer for financial information by using fingerprint information, 10 wherein the process of storing in compression the fingerprint information for a certain period of time onto said data storage unit 15 comprises the steps of (1) inputting of a fingerprint from the fingerprint input unit 12; (2) extracting the features of a fingerprint, such as a ridge bifurcation, ridge direction, and ridge ends; (3) comparing and analyzing by using the features of said fingerprint; (4) encoding 15 the data compared and analyzed in Step 3; (5) storing said encoded data to said data input unit 15; and (6) storing in compression by way of encryption during outside transmission.

The electronic card organizer 20 for financial information is well described in Korean Patent Application Nos. 10-2000-0010921 (February 24, 2000), and 10-2000-0010921 (March 4, 2000). Further, for the method of extracting fingerprint information, the references are made to the descriptions of US Patent No. 5,841,888, registered on January 23 by Harris Corp.

Brief Description of Drawings

25 Fig. 1 is a concept bloc diagram, which outlines the method of settlement for an electronic card organizer for financial information, using fingerprint information, according to the present invention.

Fig. 2 is a concept bloc diagram, which outlines the internal construction of an electronic card organizer for financial information according to the present invention.

30 Fig. 3 is a perspective view, which shows the construction of an electronic card organizer 20 for financial information according to the present invention.

Fig. 4 is a flowchart, outlining one of the embodiments of the present invention.

Fig. 5 is a flowchart, which describes the encoding process of fingerprint information by using the features of a fingerprint according to the present invention.

5 **Best Mode for Carrying out the Invention**

An electronic card organizer 20 for financial information according to the present invention is described in detail as below with references to the attached figures.

Fig. 1 is a concept bloc diagram, which outlines the method of settlement for an 10 electronic card organizer for financial information, using fingerprint information, according to the present invention. Fig. 2 is a concept bloc diagram, which outlines the internal construction of an electronic card organizer for financial information according to the present invention. Fig. 3 is a perspective view, which shows the 15 construction of an electronic card organizer 20 for financial information according to the present invention. Fig. 4 is a flowchart, outlining one of the embodiments of the present invention. Fig. 5 is a flowchart, which describes the encoding process of fingerprint information by using the features of a fingerprint according to the present invention.

As shown in Fig. 2, the present invention is a method for pre-registering the 20 fingerprint (hereinafter the master fingerprint) for user authentication at the time of financial settlement, which comprises a data input unit 11 which inputs information for credit cards, debit cards, bank account, etc., and a fingerprint input unit 12 equipped with a piezo-electric sensor for recognizing or sensing the shapes, 25 locations, and angles thereof. More particularly, an electronic card organizer 20 comprises an IC chip (illustration omitted) which pre-stores fingerprint information and the location data of a subscriber of an electronic card organizer 20 for financial information at the time of its issuance, or a data storage unit 15 which stores the shapes, locations and angles of the fingerprint by directly taking one's fingerprint by means of a fingerprint input unit 12 after receiving the electronic card organizer 20 30 for financial information. At the time of settlement, the fingerprint information, which is inputted from the fingerprint input unit 12, is read therein. If there is a

match by comparing it with the inputted master fingerprint information, the features of the fingerprint are extracted and stored in compression by way of encryption. If there is no match, the user authentication processing unit 16 that authenticates legitimacy of a user, returns to the stand-by mode. Then, when the request signal 5 for transmitting fingerprint information for carrying out authentication is inputted from the card-reader terminal 30, after transmitting the fingerprint information stored in compression by encryption at the data storage unit 15 to said card-reader terminal 30, the encrypted fingerprint information stored at the data storage unit 15 is deleted. If there is no request for transmission of fingerprint information from 10 said terminal 30, the control unit 10 transmits only the data necessary for an approval for transaction. Moreover, the present invention provides an electronic card organizer 20 for financial information, which comprises as follows: a magnetic data storage unit which is equivalent to the conventional magnetic data storage medium; a contact-type input/output terminal 17; a non-contact type RF 15 communication unit 18; wire/wireless linkers (23, 24) which allows connection to the card-reader 30 via wire/wireless mode for downloading the information such as changes in the main system of the corresponding company and other application programs; a data display unit 14 which displays information as inputted or transactional details; and a power unit 13.

20 Moreover, as shown in Fig. 3(a), the inner side of said electronic card organizer 20 for financial information comprises as follows: exterior-angle edges of a fingerprint input unit 12 for extracting the shapes, locations and angles of a fingerprint taken each time the users uses a card, or coordinates at a constant interval at the frontal side; a fingerprint input unit 12 in which a piezo-electric sensor 25 installed on the back side of the fingerprint input unit 12 transforming the shapes, angles, and locations of the user's fingerprint to the fingerprint and location information data based on the changes in electric charge according to the electric changes in the features of a fingerprint as taken thereby; a data storage unit 15 for storing the information thereof; a data input unit 11 for allowing inputs and selection 30 of various information including schedule management, telephone number directories, credit card accounts, debit cards, and bank accounts; a data display unit

14 for displaying inputted information; a power switch 21; and a lamp 22 for showing the operation of transmitting/receiving, etc.

Moreover, as shown in Fig. 3(b), on the back side of an electronic card organizer 20 comprises: a magnetic data storage unit 18 of a contact-type, which has a record 5 of readable information from a conventional card-reader; a contact-type input/output terminal 17, for example, having a plated surface, for transmitting the fingerprint information stored in compression, encrypted in the user authentication processing unit 16 by means of said control unit 10 upon request by the terminal for electronic commerce or financial settlement; a non-contact-RF communication unit 18; 10 wire/wireless linkers (23, 24) for connecting to the card-reader terminal 30 in a wire/wireless mode and for downloading information, such as changes in the main system of the credit card company or other application programs. Moreover, the contact-type input/output terminal 17, as shown in Fig. 3(b), comprises a power source terminal for charging the battery of the power unit 13 installed within the 15 electronic card organizer 20 for financial information; and an input/output terminal for input/outputting various types of signals.

Moreover, the card-reader terminal 30 can be of any type of devices requiring user authentication, e.g., conventional credit card terminals, ATM terminals on bank network, desktop computers, notebook computers, and portable mobile telephones. 20 The card-reader terminal 30 is equipped with one or more of connection terminals for an electronic card organizer 20 for financial information, a magnetic data storage unit 19, an input/output terminal 17, wire/wireless linkers (23, 24), and a RF communication unit 18.

Further, the operation of processing a credit card is explained as below, wherein 25 it is processed by means of the flow of settlement for an electronic card organizer 20 for financial information using fingerprint information according to the present invention constructed as above.

The present invention is a method of settlement for an electronic card organizer 20 for financial information, using fingerprint information, wherein the procedure of 30 approving a transaction comprises the following nine steps of:

(1) installing an IC chip (illustration omitted) which pre-stores fingerprint information and location data of a subscriber of an electronic card organizer 20 for financial information at the time of its issuance, or storing the shapes, locations and angles of a fingerprint by directly taking one's fingerprint by means of a fingerprint input unit 15 after receiving the electronic card organizer 20 for financial information; and additionally storing or deleting the fingerprint information of a user of an electronic card organizer 20 for financial information under the approval of said master fingerprint, as a method of inputting information relating to financial transactions and accounts, such as credit cards, debit cards, bank account, etc., to the electronic card organizer 20 for financial information and pre-registering the fingerprint (hereinafter the master fingerprint) for user authentication at the time of financial settlement;

15 (2) selecting one of the credit cards inputted and stored in Step 1, at the time of settlement of money for a purchase by a user;

20 (3) putting one's finger against the fingerprint input unit 12, the fingerprint of which corresponds to the one which has been registered with the card company; reading the fingerprint as taken through the piezo-electric sensor installed onto the back side of said fingerprint input unit 12; comparing the fingerprint and location information with the fingerprint information of the master fingerprint inputted and stored in Step 1 or with the fingerprint information which has been authorized to be used by the master fingerprint; 25 authenticating the legitimacy of the user; upon approval of authentication, displaying the details of the approval of authentication on the data display unit 15 while at the same time encrypting the fingerprint information authorized with user authentication and storing in compression in the data storage unit 15 for a certain period of time, followed by proceeding to the next step; and upon denial of authentication, displaying the details of denial of authentication onto the data display unit 14 while at the same time

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returning to the stand-by state for transaction;

5 (4) connecting the electronic card organizer 20 for financial information, having been approved for user authentication, to the card-reader terminal 30;

(5) determining as to whether there is a signal for requesting confirmation of the fingerprint information from the corresponding main system 50 requesting transaction authentication;

10 (6) transmitting the fingerprint and location information, which had been encrypted and stored in compression at the data storage unit 15 in Step 3, by way of the control unit 10 of the electronic card organizer 20 for financial information, along with the data which are necessary for approving a transaction, to the card-reader terminal 30 while at the same time deleting the fingerprint and location information data stored in the data storage unit 15, when there is a signal for requesting confirmation of the fingerprint information from the corresponding main system 50 requesting transaction authentication;

15 (7) automatically deleting the fingerprint and location information stored at the data storage unit 15 by way of the control unit 10 of the electronic card organizer 20 for financial information, after a certain period of time, and transmitting only the necessary information for approving a transaction, as is the case for conventional transactions;

20 (8) carrying out authentication procedures, which includes a comparison with the fingerprint information registered with the card company on the basis of the fingerprint and location information data received through said card-reader terminal 30 connected to the main system 50 of the corresponding card company, which had received a request for approving a transaction; transmitting information, such as a transaction approval number and

transaction details to the card-reader terminal (30), if there is a match; and transmitting the error code corresponding to the denial of an approval of transaction and accompanying messages to the card-reader terminal 30, if there is no match, or in the case of a denial based on other reasons; and

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(9) displaying, for confirmation by a user, the information received from the main system 50 of the corresponding card company on the data display unit 14 of said electronic card organizer 20 for financial information.

10 Moreover, as shown by the dotted lines in Fig. 4, a settlement is possible with said card-reader terminal 30 equipped with the functions of a user authentication process of an electronic card organizer 20 for financial information. For example, the process starts with Step A-1 of pre-registering the user fingerprint as a master fingerprint, which is akin to Step 1, and after undergoing Step A-2 of user 15 authentication by means of the method of Step 3, Steps 4~8 follow. Thereafter, the transaction results received from Step 9 are stored in the data storage unit (illustration omitted) of said card-reader terminal 30, and while displaying the results on the display device (illustration omitted), with the steps of said process as such, the results are transmitted to said electronic card organizer 20 for financial 20 information.

As above, in the method of settlement for an electronic card organizer for financial information, using fingerprint information, according to the present invention, by being equipped with the function of user authentication within the electronic card organizer 20 for financial information, it is unnecessary to 25 additionally install a fingerprint input unit or equip with the function of fingerprint recognition onto the card-reader terminal 30 for user authentication at the time of electronic commerce or financial settlement. Further, it can carry out user authentication, prior to the settlement, and once again carry out user authentication at the time of request for fingerprint information from the main system 40 which had 30 received the request for approving a transaction. Due to the fact the function of user authentication of said electronic card organizer 20 for financial information can

be installed onto the card-reader terminal 30, the transaction occurs after the user authentication of the electronic card organizer 20 for financial information and of the card-reader terminal 30. As such, approving of a transaction is possible on the part of the main system 40 of the corresponding dealing company without a separate approval procedure. Moreover, the data can be stored and at the same time displayed on the electronic card organizer 40 for financial information and on the card-reader terminal 30, without outputting a separate receipt, e.g., a conventional transaction account receipt. Consequently, a separate receipt such as a transaction account receipt is not needed, nor its output device.

10 The present invention is not limited by the aforementioned embodiments and can be worked in a variety of forms without exceeding the scope of its technical subject matter therein.

15 For example, the information for a bank account, instead of a credit card, can be selected in Step 2. After undergoing user authentication (Step 3), and connecting to the main system of the corresponding account through ATM, etc. (Step 4), through Steps 5~9, the transaction can be made by manipulating an ATM, much like the conventional method of transaction.

20 Moreover, at the time of electronic commerce, the data necessary for approving a transaction can be transmitted by connecting to a desktop computer, a notebook computer, a portable mobile telephone, etc.

A conventional bank credit card can also be used as a transportation card for subway, bus, etc. As such, a bank credit card capable of being used as a transportation card can be selected in Step 2. After undergoing user authentication (Step 3), it can also be used as method of settlement.

25 Moreover, with the present invention, a transaction is possible by means of the conventional method of transaction by using a magnetic data storage unit 19 having the same functions as the conventional magnetic storage medium.

30 According to the present invention as constructed above, by equipping the electronic card organizer 20 for financial information with the functions of user authentication, it is unnecessary to additionally install a fingerprint input unit or equip it with the functions of fingerprint recognition onto the card-reader terminal 30

for user authentication at the time of electronic commerce or financial settlement. Further, it can once again carry out user authentication at the time of request for fingerprint information from the main system 40 which had received the request for approving a transaction. As such, improper use can be almost completely 5 prevented. Due to the fact that the function of user authentication of said electronic card organizer 20 for financial information can be installed onto the card-reader terminal 30, the transaction occurs after the user authentication of the electronic card organizer 20 for financial information and of the card-reader terminal 30. As such, approving a transaction is possible on the part of the main system 40 of the 10 corresponding dealing company without a separate approval procedure. Moreover, the data can be stored and at the same time displayed on the electronic card organizer 40 for financial information and on the card-reader terminal 30, without outputting a separate receipt, e.g., a conventional transactional account receipt. Consequently, a separate receipt such as a transaction account receipt is not needed, nor its output 15 device, which in turn would lead to cost reduction. Also, the stored transaction details can be viewed at any time. Moreover, by storing in compression only the features of the fingerprint, it can prevent occurrences of denials of settlement due to a system failure during the period of a sudden jump in traffic for requests for 20 approving transactions on account of a vast amount of data for fingerprint information.

Moreover, the present invention comprises a magnetic data storage unit, an input/output terminal, a RF communication unit, and wire/wireless linkers. Accordingly, it is easy to connect with any type of card-reader terminals. Even 25 during the time of overloading for approving transactions, with respect to the method of settlement involving the current transactional method and the use of fingerprint information, the present invention is not restricted to the limitations imposed by such transactions.

WHAT IS CLAIMED IS:

1. A method of settlement for an electronic card organizer for financial information,
5 using fingerprint information, in relation to said organizer having a data input
unit 11, a fingerprint input unit 12, an IC chip storing user fingerprints or a data
storage unit 15, a user authentication processing unit 16, a control unit 10, an
input/out terminal 17, a RF communication unit 18, a magnetic data storage unit
19, wire/wireless linkers, a data display unit 14, and a power unit 13; and a card-
10 reader terminal having a data storage unit, a data display unit, and a connection
terminal which can be connected respectively to an input/output terminal 17, a
RF communication unit 18, or wire/wireless linkers of said electronic card
organizer 20, wherein said method of settlement comprises reading the
15 fingerprint information inputted from said fingerprint input unit 12 of said
electronic card organizer 20 for financial information, and comparing the same
with the pre-inputted fingerprint for determining user authentication; if there is a
match, extracting the features of the fingerprint, followed by encryption, and
storing the same in compression in said data storage unit for a certain period of
time; returning to the stand-by status if there is no match; after processing user
20 authentication, connecting to said card-reader terminal 30; transmitting the
fingerprint information stored in compression at the data storage unit 15 of said
electronic card organizer 20 for financial information through said main system
40, followed by deletion thereafter, if the signal for requesting fingerprint
information for user authentication is transmitted from the corresponding main
25 system 40 requesting an approval for transaction; transmitting only the
information necessary for approving a transaction to said main system 40
through said card-reader terminal 30, if the signal requesting fingerprint
information for user authentication from said main system 40 is not transmitted;
comparing with the fingerprint information of the account requesting an
30 approval for the corresponding transaction by way of said main system 40, if the
fingerprint information is requested; proceeding with the conventional process

of approving a transaction without the process of confirmation of fingerprint information, if the fingerprint information is not requested; transmitting the transaction approval number and the transaction details to said card-reader terminal 30, if there is an approval for transaction; and transmitting the error 5 message pertaining to the denial of approval of transaction along with the error code to said card-reader terminal 30, if there is a denial of approval of transaction.

2. The method of settlement for an electronic card organizer for financial 10 information, using fingerprint information, according to Claim 1, wherein said card-reader terminal 30 is equipped with the same functions of user authentication of said electronic card organizer 20 for financial information, for carrying out user authentication, prior to its connection to said electronic card organizer 20 for financial information.
- 15
3. The method of settlement for an electronic card organizer for financial information, using fingerprint information, according to Claim 1 or 2, which comprises storing said information resulting from the approval of transaction at the data storage unit of said card-reader terminal 30 while simultaneously displaying the same on the data displaying unit, if the information resulting from the approval of transaction is transmitted from the main system 40 to said card-reader terminal 30 after carrying out user authentication at said card-reader terminal 30; and allowing referencing of the information of transactional details 20 stored therein and outputting the same through a printing device.
- 25
4. The method of settlement for an electronic card organizer for financial information, using fingerprint information, according to Claim 1, wherein said card-reader terminal 30 receives data for authorization of approval of transaction or the denial of approval of transaction from said main system 40 requesting an 30 approval for transaction, and thereafter transmitting the data to said electronic card organizer 20 for financial information for allowing confirmation from the

data displaying unit 14 of said electronic card organizer 20 for financial information.

5. The method of settlement for an electronic card organizer for financial information, using fingerprint information, according to Claim 1, which comprises connecting the electronic card organizer 20 for financial information to said card-reader terminal 30 by way of one of wire/wireless linkers, an input/output terminal 17, or a RF communication unit 18.
- 10 6. The method of settlement for an electronic card organizer for financial information, using fingerprint information, according to Claim 1, wherein said electronic card organizer 20 for financial information is equipped with a magnetic data storage unit which is equivalent to a conventional magnetic data storage medium for connecting to the conventional magnetic card-reader for 15 allowing settlement by means of a conventional method.
- 20 7. The method of settlement for an electronic card organizer for financial information, using fingerprint information, according to Claim 1, wherein said card-reader terminal 30 is a wire/wireless terminal, requiring authentication.
8. The method of settlement for an electronic card organizer for financial information, according to Claim 7, which comprises allowing electronic commerce by way of said wire/wireless terminal.
- 25 9. The method of settlement for an electronic card organizer for financial information, according to Claim 7 or 8, wherein said wire/wireless terminal is a desktop computer, a notebook computer, or a portable mobile telephone.
- 30 10. The method of settlement for an electronic card organizer for financial information, using fingerprint information, according to Claim 1, wherein said electronic card organizer 20 for financial information allows settlement by way

of connection to the transportation card terminal after selecting a credit card allowing settlement as a transportation card and then undergoing user authentication at said user authentication processing unit 16.

5 11. The method of settlement for an electronic card organizer for financial information, using fingerprint information, according to Claim 1, which comprises allowing settlement by means of selecting information of bank accounts on said electronic card organizer 20 for financial information and then undergoing user authentication from said user authentication processing unit 16,
10 followed by connection to an ATM terminal on bank network.

12. The method of settlement for an electronic card organizer for financial information, using fingerprint information, according to Claim 1, wherein the process of storing in compression the fingerprint information onto said data storage unit 15 for a certain period of time comprises the steps of:
15

- (1) inputting a fingerprint from said fingerprint input unit 12;
- (2) extracting the features of said fingerprint, including a ridge bifurcation, ridge direction, and ridge ends;
20
- (3) comparing and analyzing by using the features of said fingerprint;
- (4) encoding the data compared and analyzed in Step 3;
25
- (5) storing said encoded data to said data storage unit 15; and
- (6) storing in compression by way of encryption during outside transmission.

FIG. 1

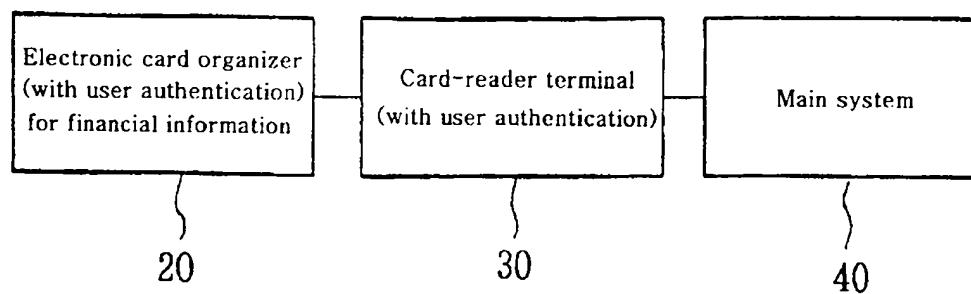


FIG. 2

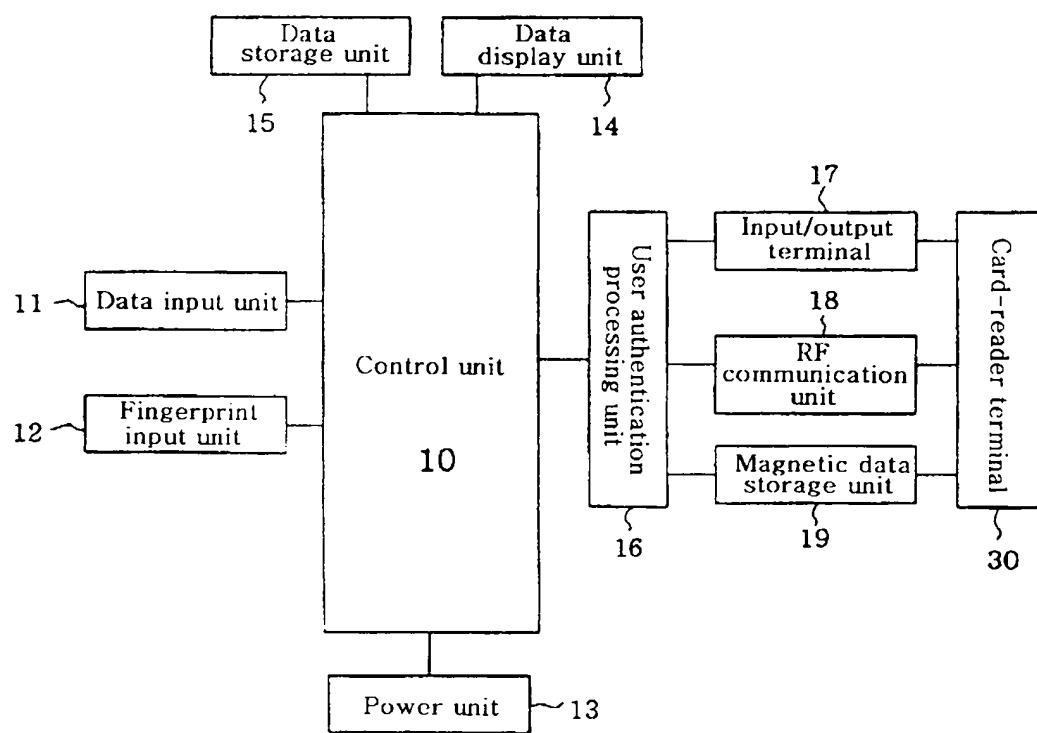


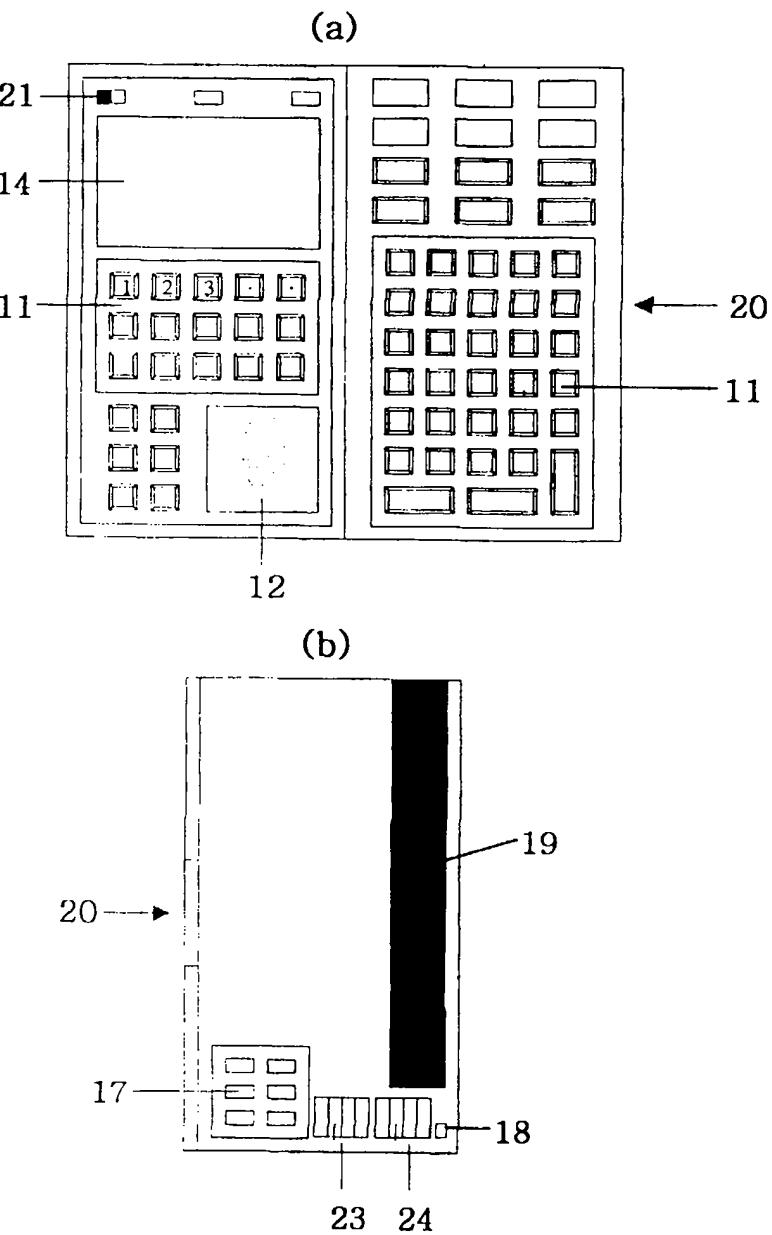
FIG. 3

FIG. 4

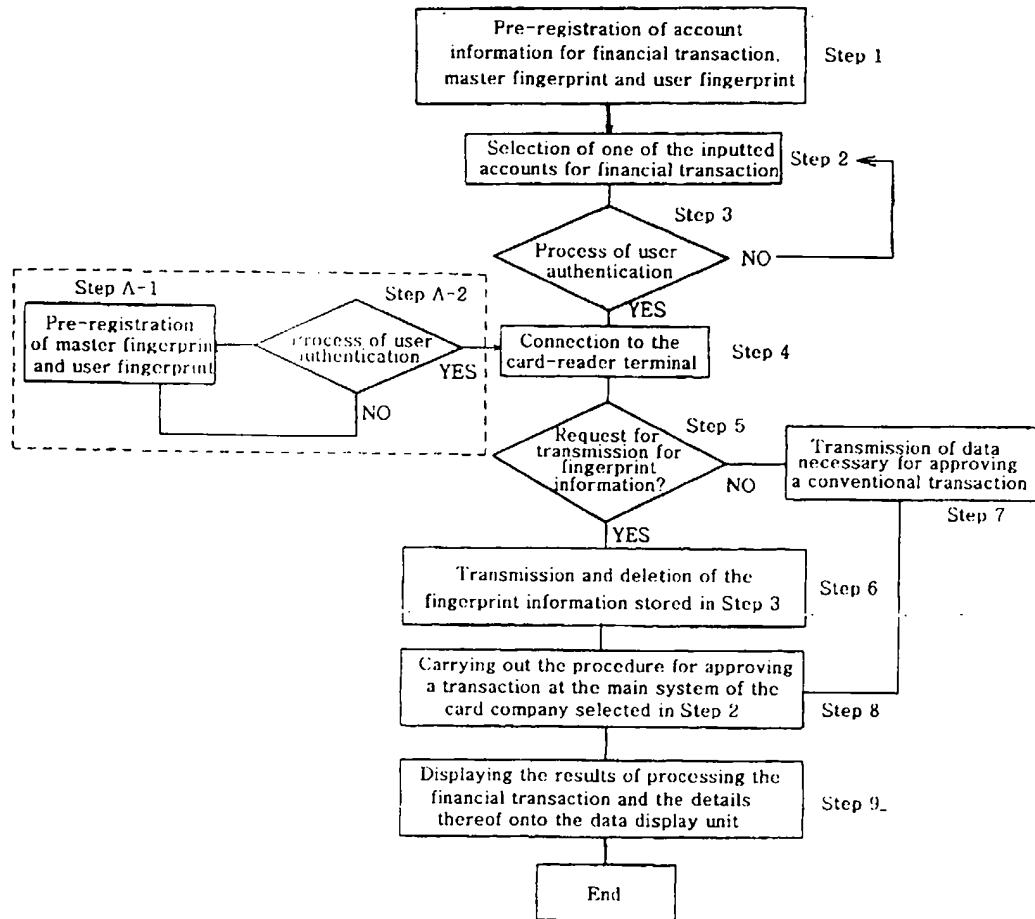
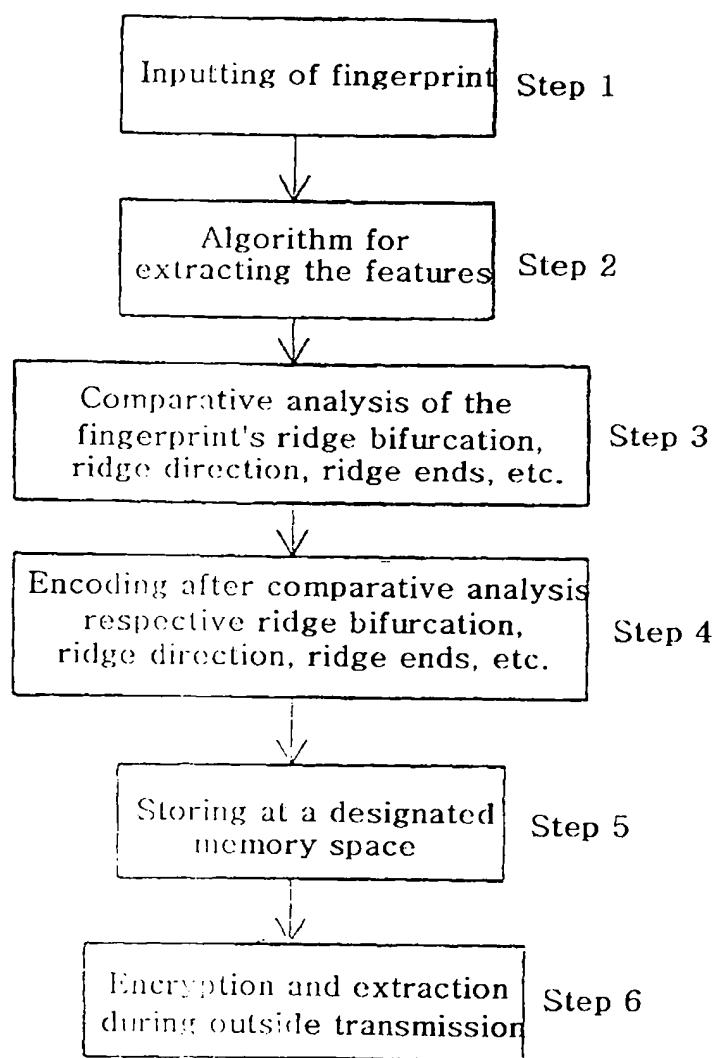


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR01/00341

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 G06K 17/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 G06K, G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
KR, JP, IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
KIPONET

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 10-207997A(CENTRAL JAPAN RAILWAY CO) 7 AUGUST 1998 see the whole document	I-12
A	JP 11-195005A(CASIO COMPUT CO LTD) 21 JULY 1999 see the whole document	I-12
A	KR 1998-32255(INTERNATIONAL BUSINESS MACHINES CORPORATION) 25 JULY 1998 see the whole document	I-12

Further documents are listed in the continuation of Box C.

See patent family annex.

- * Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
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- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search
21 JUNE 2001 (21.06.2001)

Date of mailing of the international search report
25 JUNE 2001 (25.06.2001)

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Telephone No. 82-42-481-5981



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR01/00341

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP10207997	07-08-1998	NONE	
JP11195005	21-07-1999	NONE	
KR1998-32255	25-07-1998	EP836160A2 JP10124460A2	15-04-1998 15-05-1998